

Project ENVVEST Technical Update

- **Status of Technical Studies**
- **Modeling Fecal Coliform Loading in Sinclair and Dyes Inlets**
- **Simulation of Water Year 2003**
 - **Model Inputs**
 - **Evaluating Model Output**
 - **Determining Critical Conditions**
- **Summary**

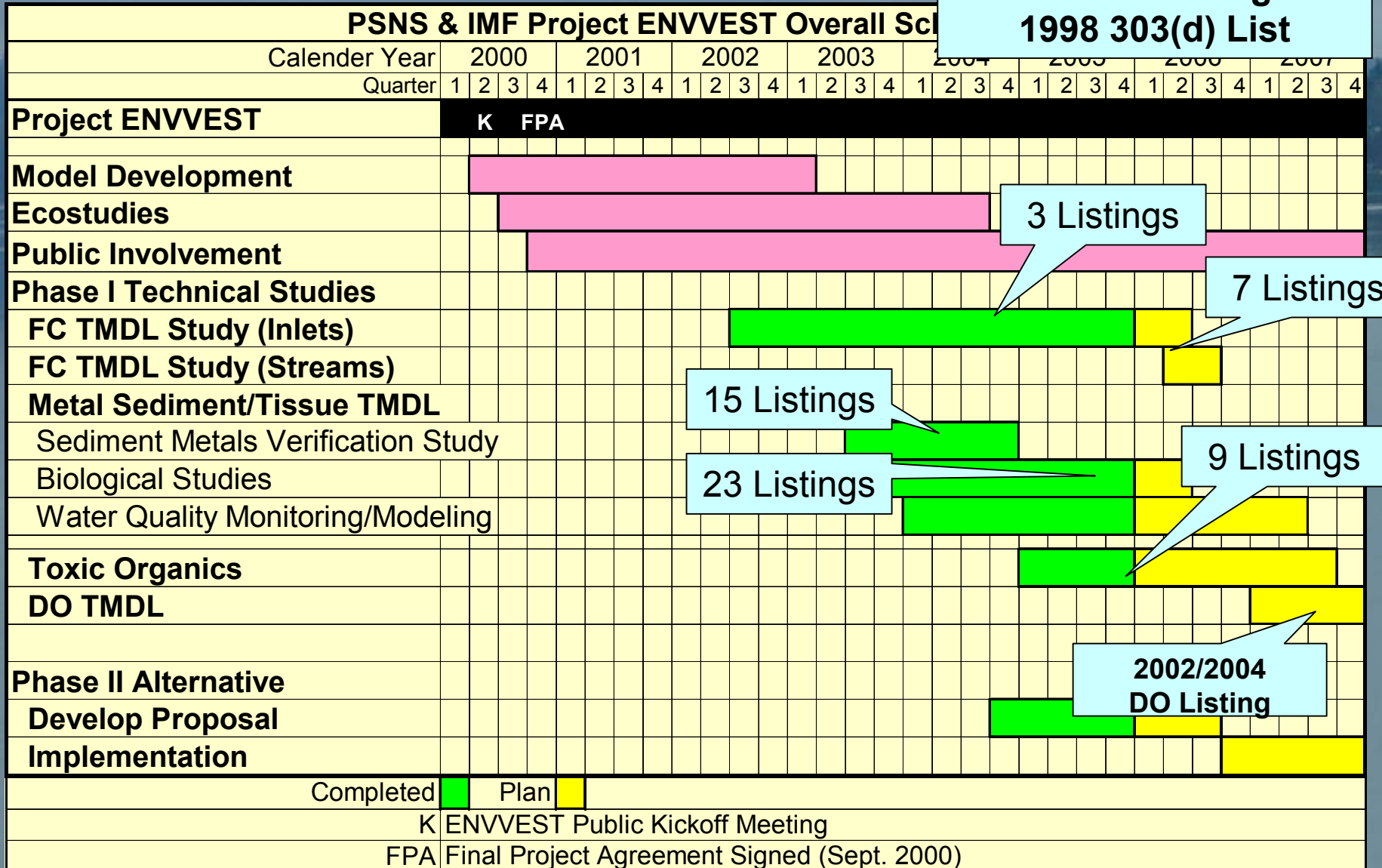
Dr. Robert K. Johnston
ENVVEST Technical Coordinator
Community Advisory Committee Meeting
February 16, 2006

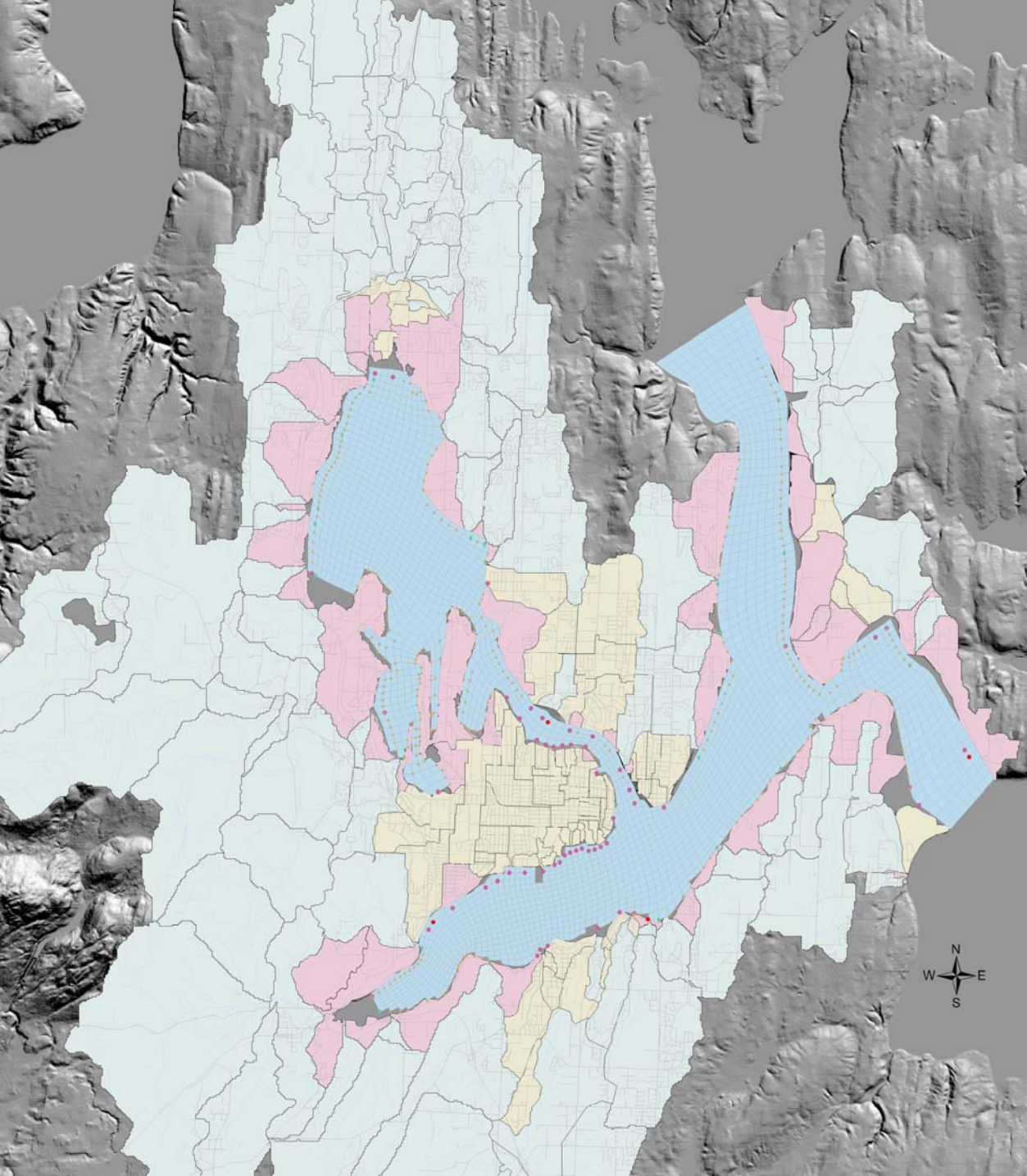
Overall Schedule

PSNS & IMF Project ENVVEST Overall Schedule																																	
Calendar Year		2000				2001				2002				2003				2004				2005				2006				2007			
Quarter		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Project ENVVEST		K FPA																															
Model Development																																	
Ecostudies																																	
Public Involvement																																	
Phase I Technical Studies																																	
FC TMDL Study (Inlets)																																	
FC TMDL Study (Streams)																																	
Metal Sediment/Tissue TMDL																																	
Sediment Metals Verification Study																																	
Biological Studies																																	
Water Quality Monitoring/Modeling																																	
Toxic Organics																																	
DO TMDL																																	
Phase II Alternative																																	
Develop Proposal																																	
Implementation																																	
Completed																																	
Plan																																	
K ENVVEST Public Kickoff Meeting																																	
FPA Final Project Agreement Signed (Sept. 2000)																																	

Overall Schedule

Number of Listings on
1998 303(d) List





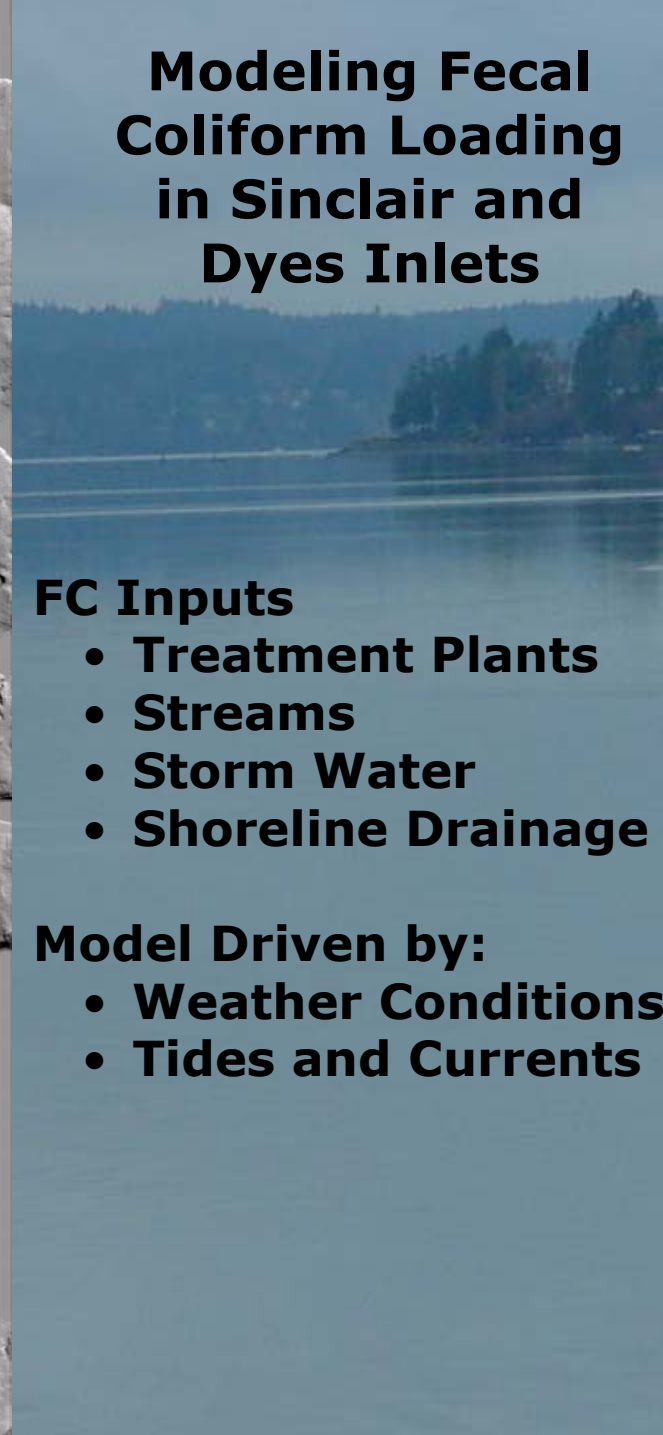
Modeling Fecal Coliform Loading in Sinclair and Dyes Inlets

FC Inputs

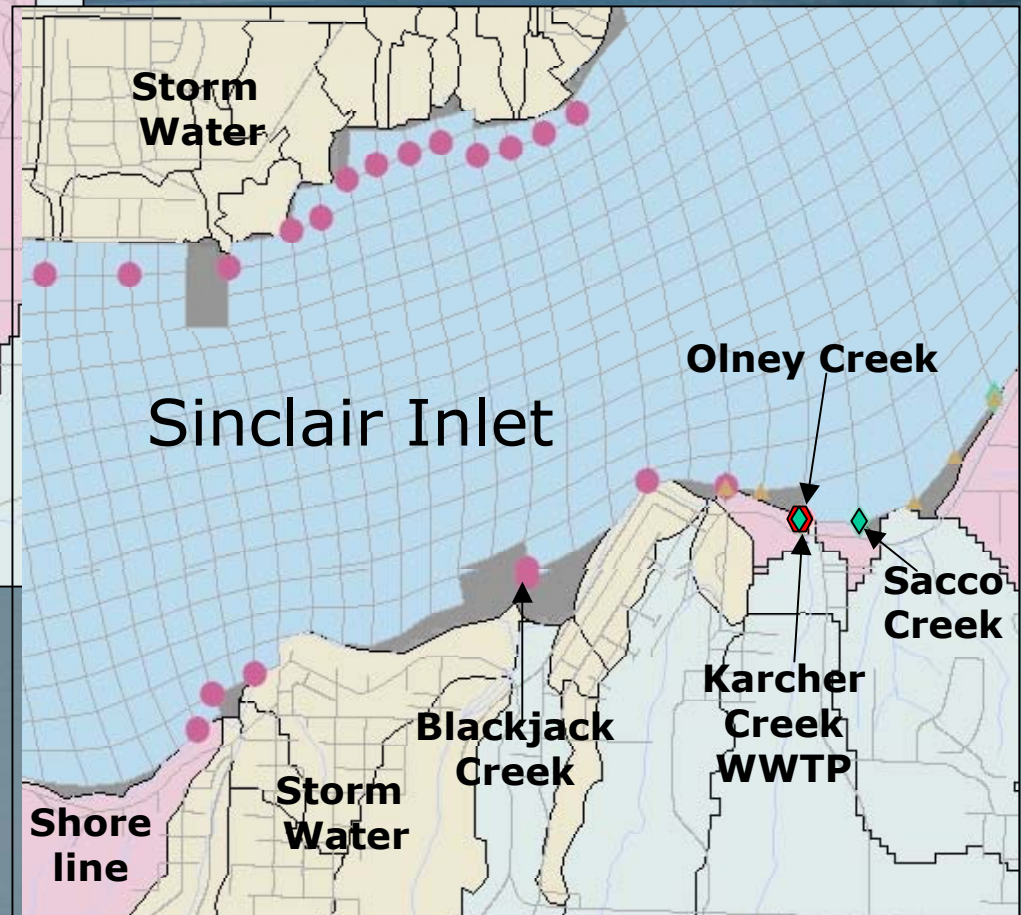
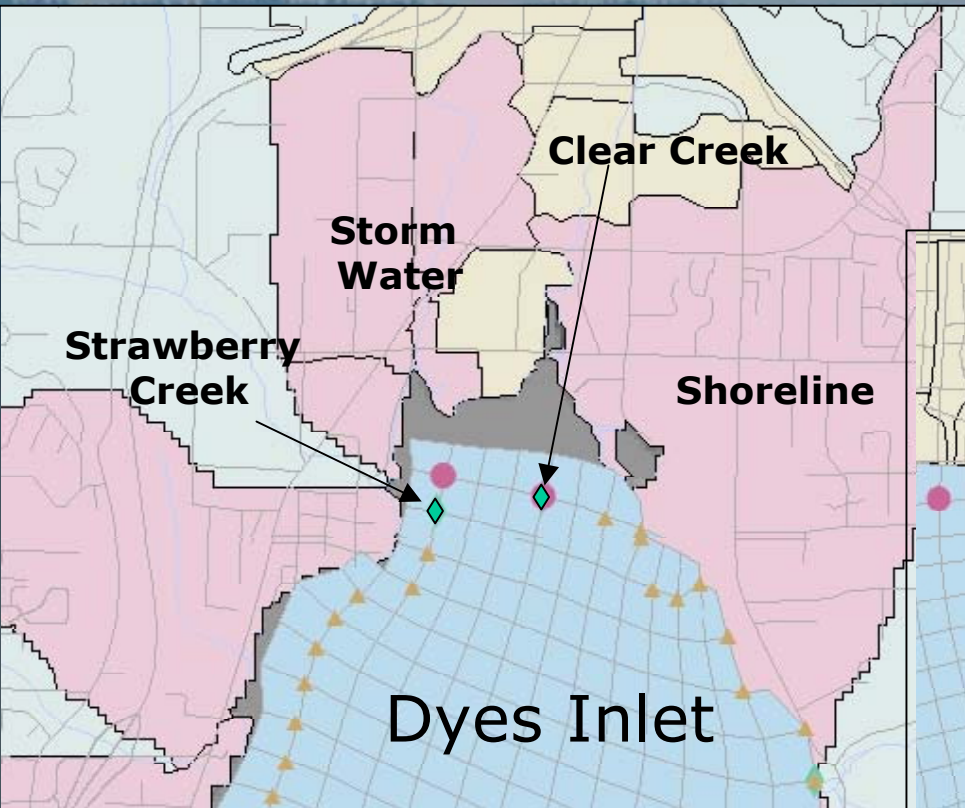
- **Treatment Plants**
- **Streams**
- **Storm Water**
- **Shoreline Drainage**

Model Driven by:

- **Weather Conditions**
- **Tides and Currents**



Detail of Model Inputs



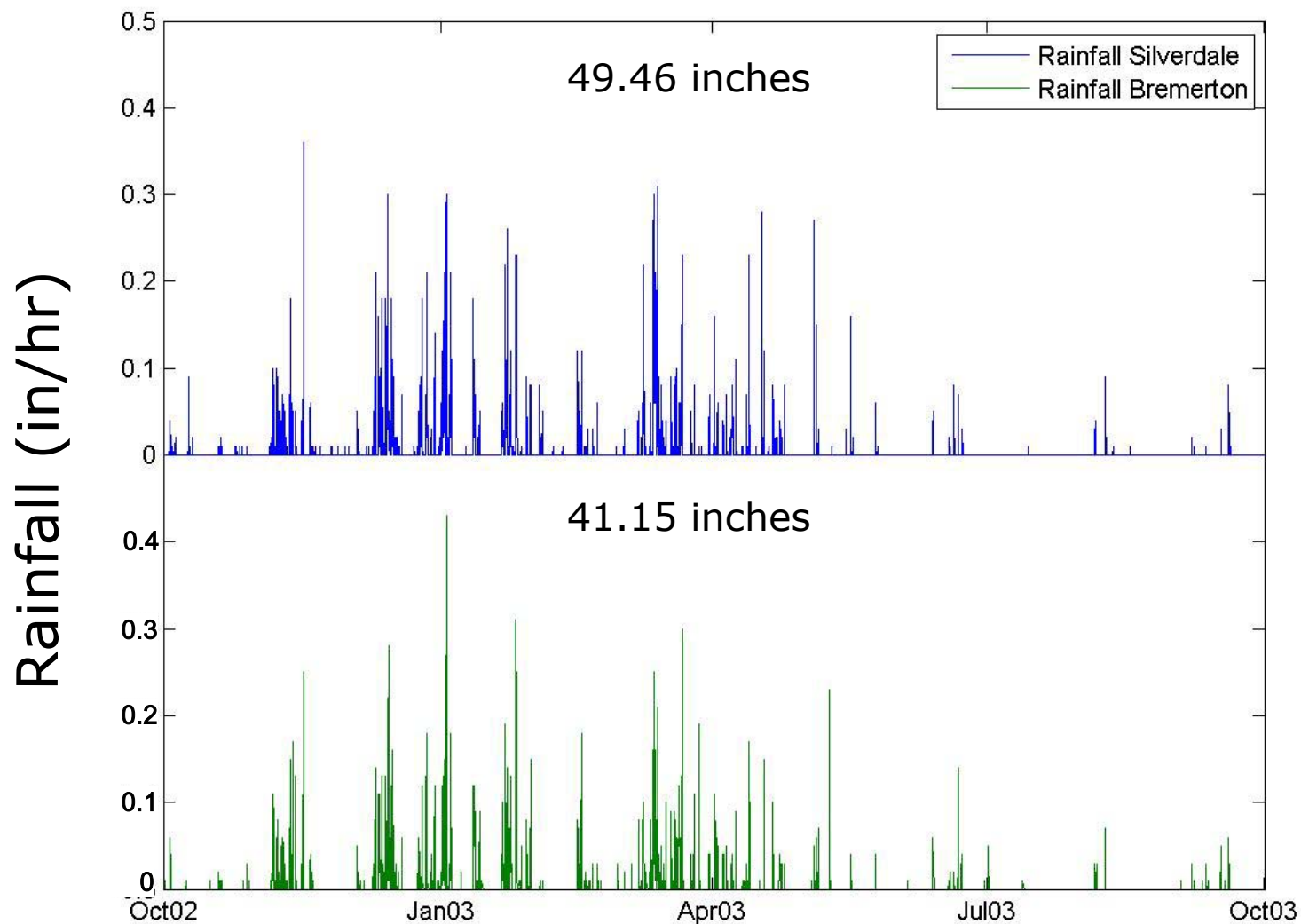
Inputs

- ◆ Stream
- Storm water
- ▲ Shoreline runoff
- ◈ Wastewater Treatment Plant (WWTP)

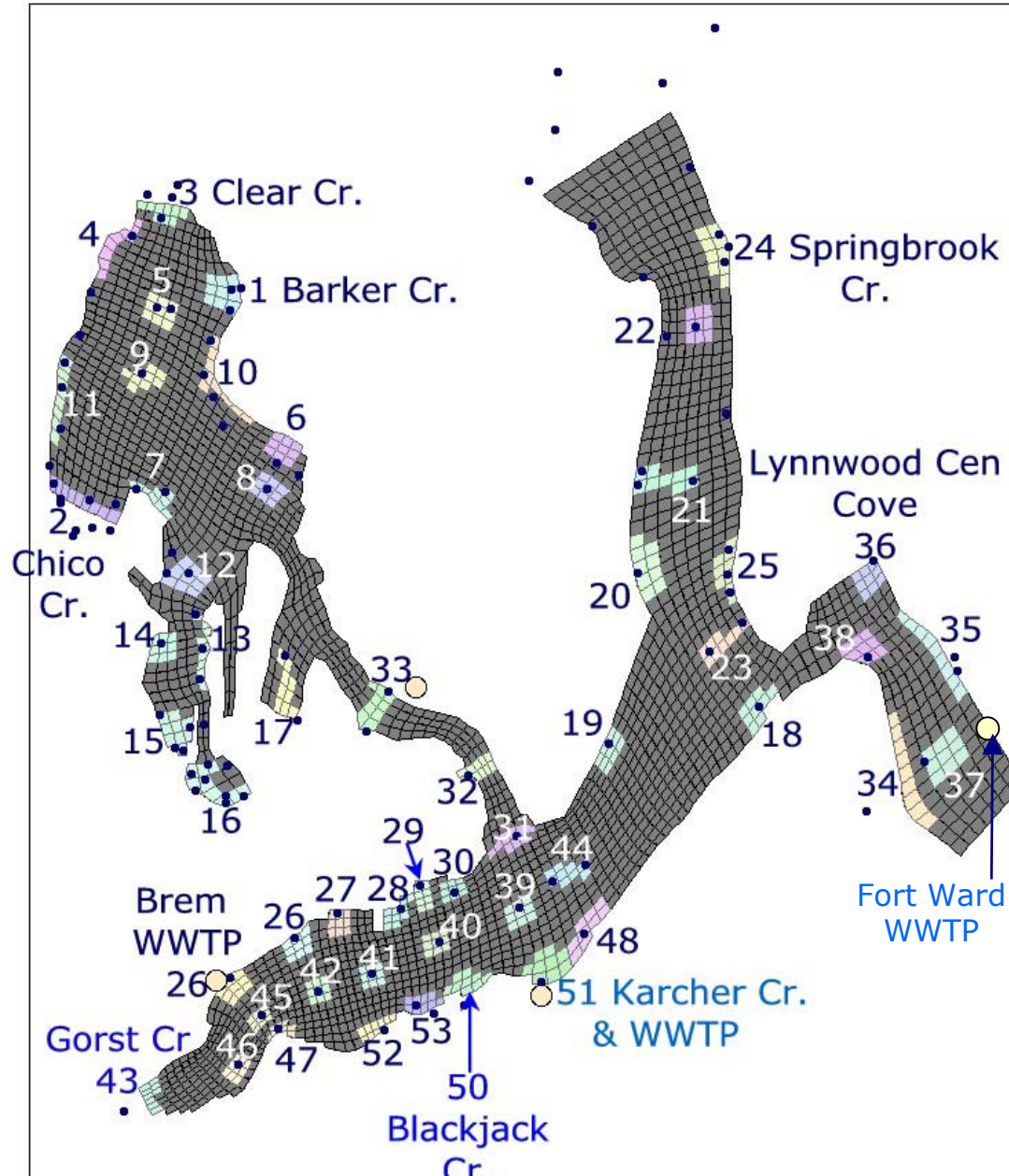
Model Limitations

- **Indirectly accounts for:**
 - Failed septic systems
 - Upland Waterfowl and Wildlife
- **Inputs do not include:**
 - Marinas
 - Broken pipes
 - Nearshore waterfowl and marine mammals
 - Other unknown sources

Watershed Model Driven by Weather

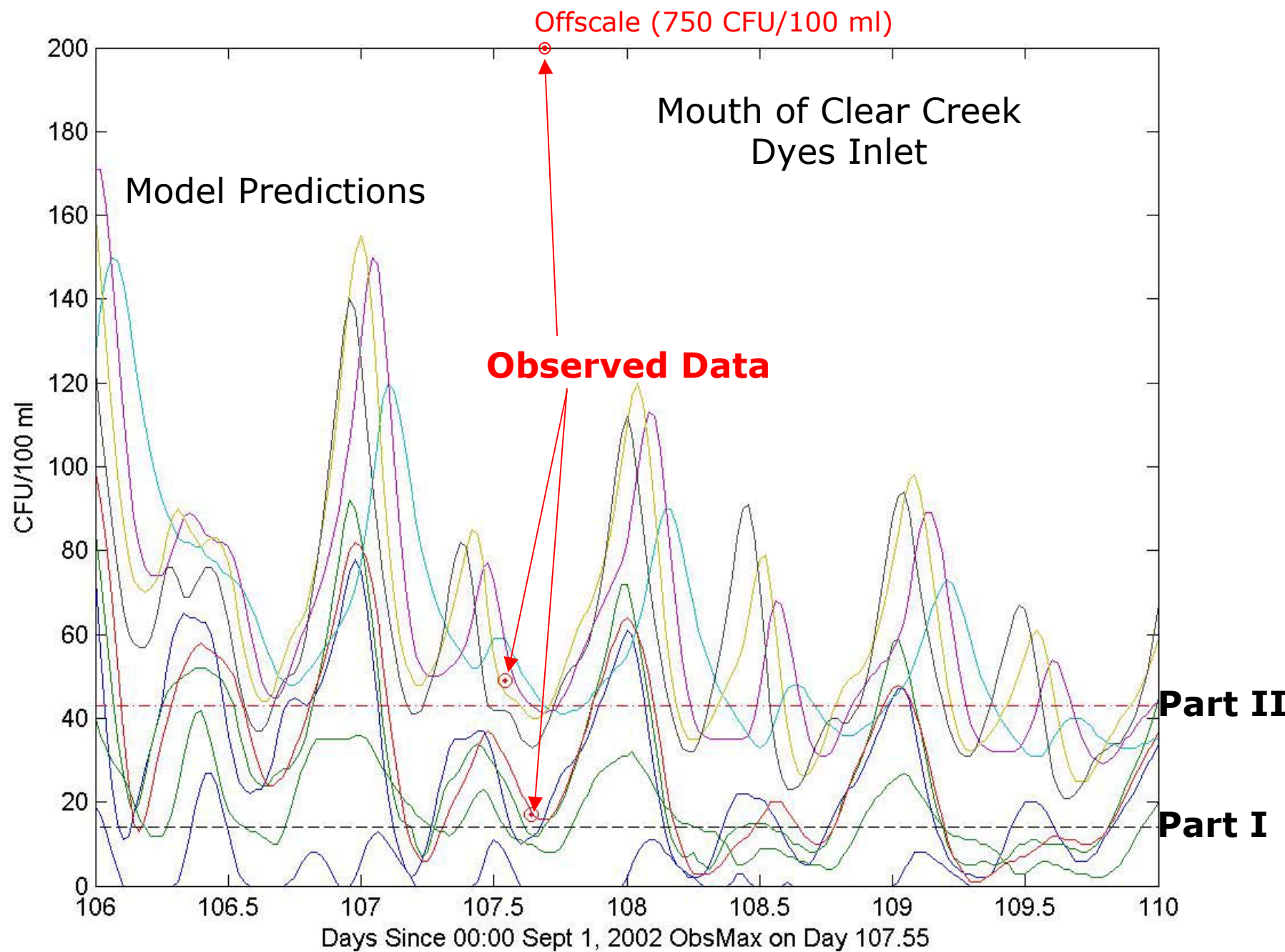


Evaluating Model Results

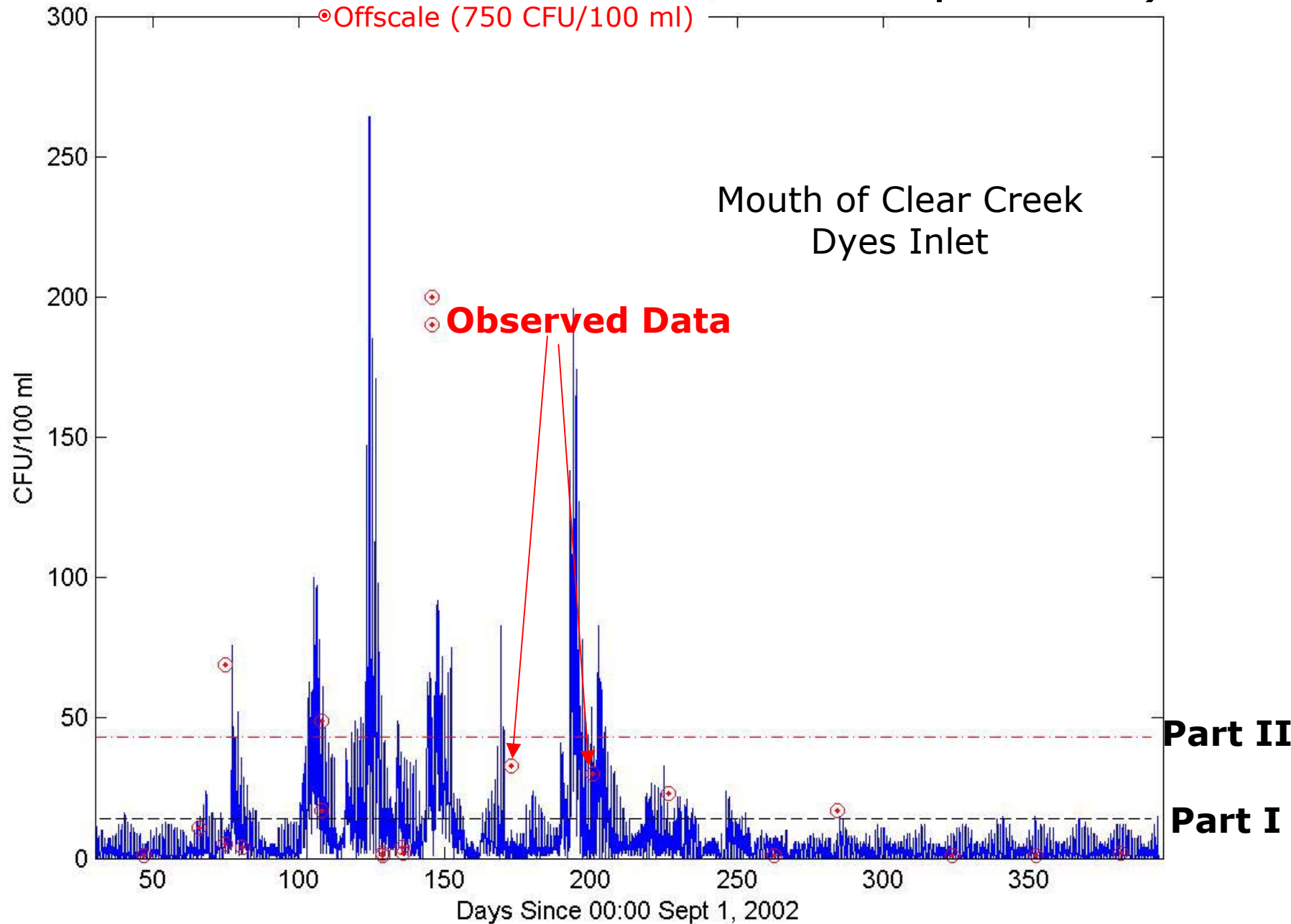


Detail of Model Grid





Water Year 2003 (Oct 2002 – Sept 2003)



Identifying Critical Conditions

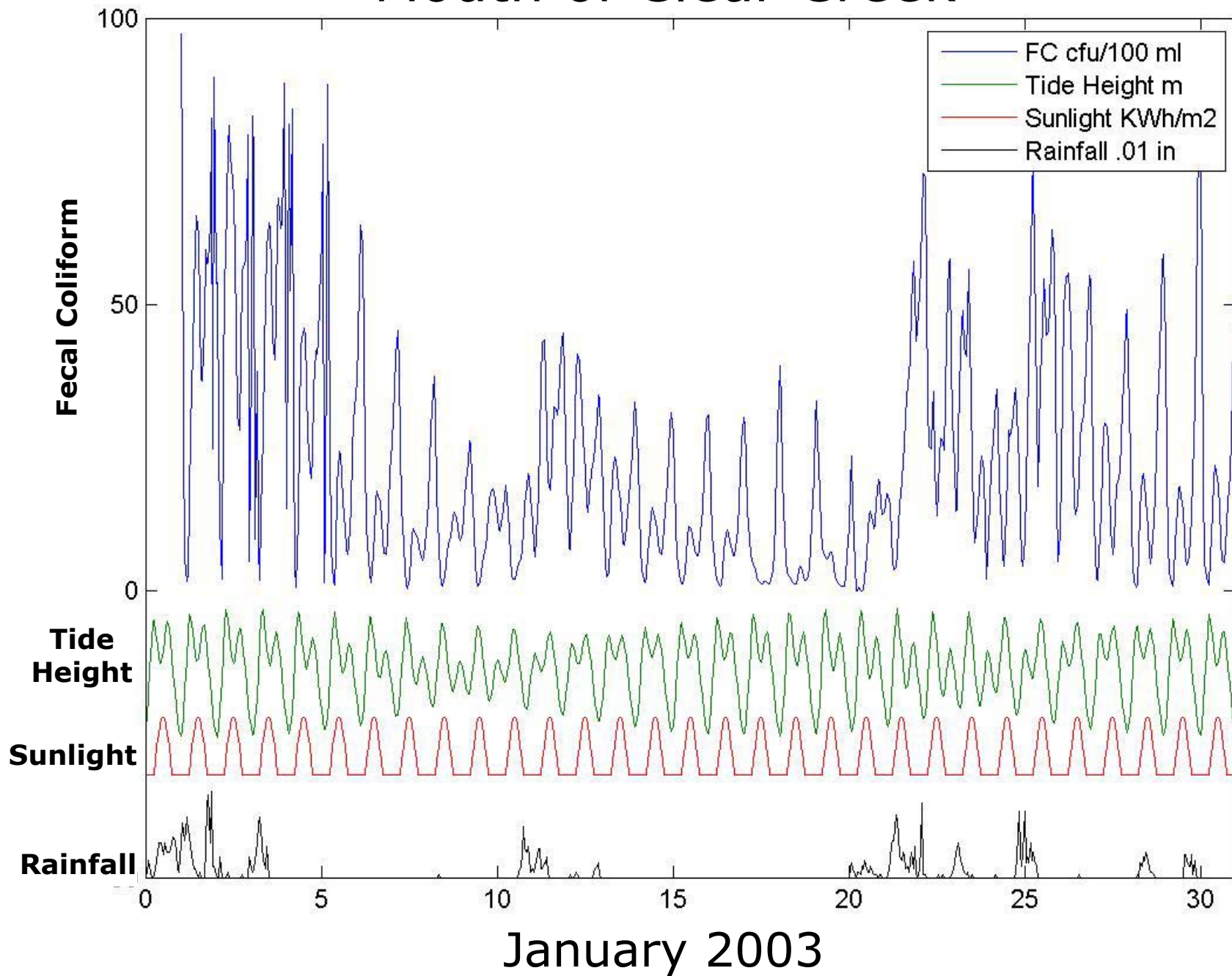


Identifying Critical Conditions

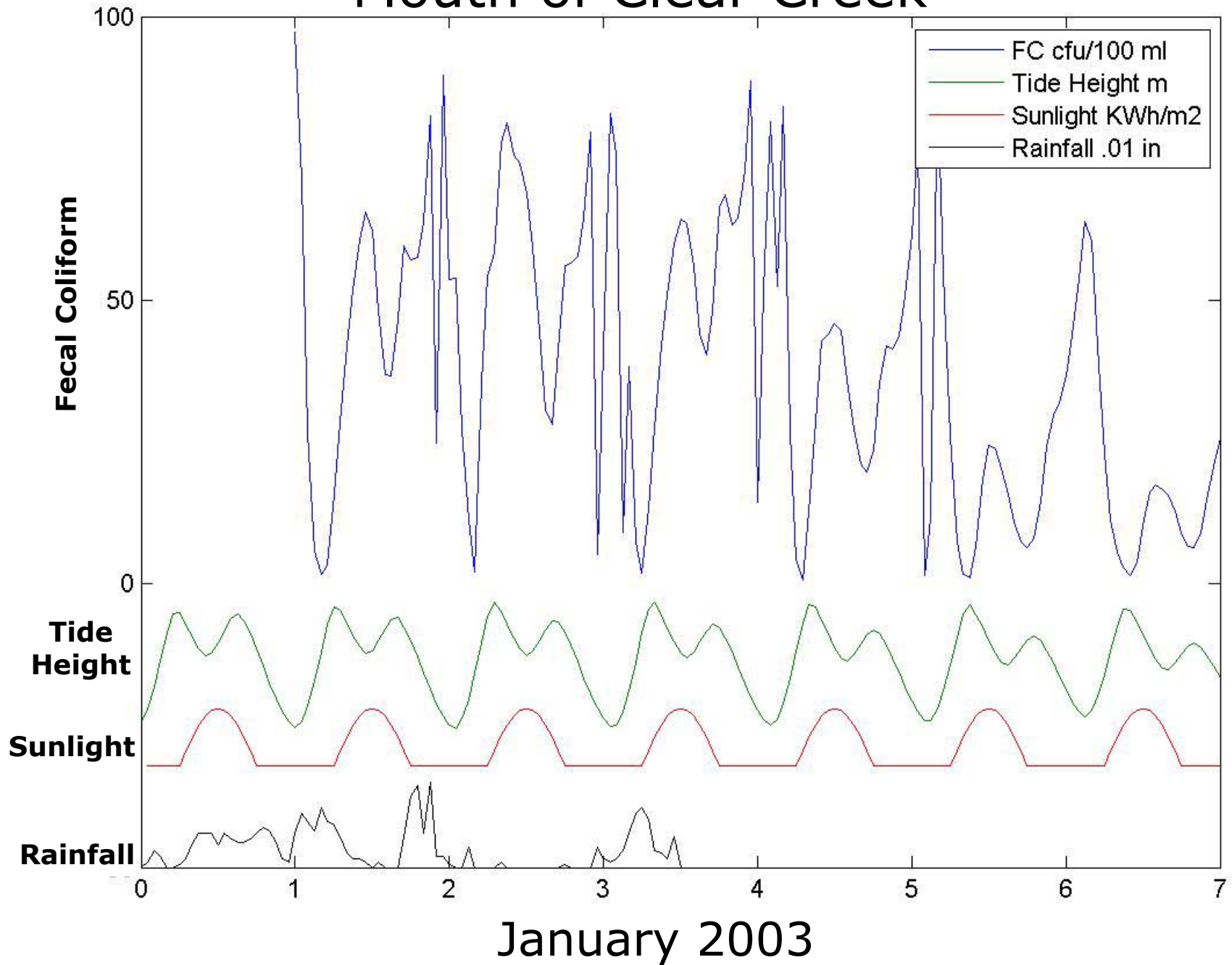
- **Spatial Considerations**
 - **Arial extent of plume**
 - **Depth of plume**
- **Temporal Considerations**
 - **Weather conditions**
 - **Tidal variations**
 - **Sunlight**
 - **Mixing processes**
- **Combination of Factors**
 - **Multiple sources**

[Link to animation of Oct. 16-20, 2004 Storm Event](#)

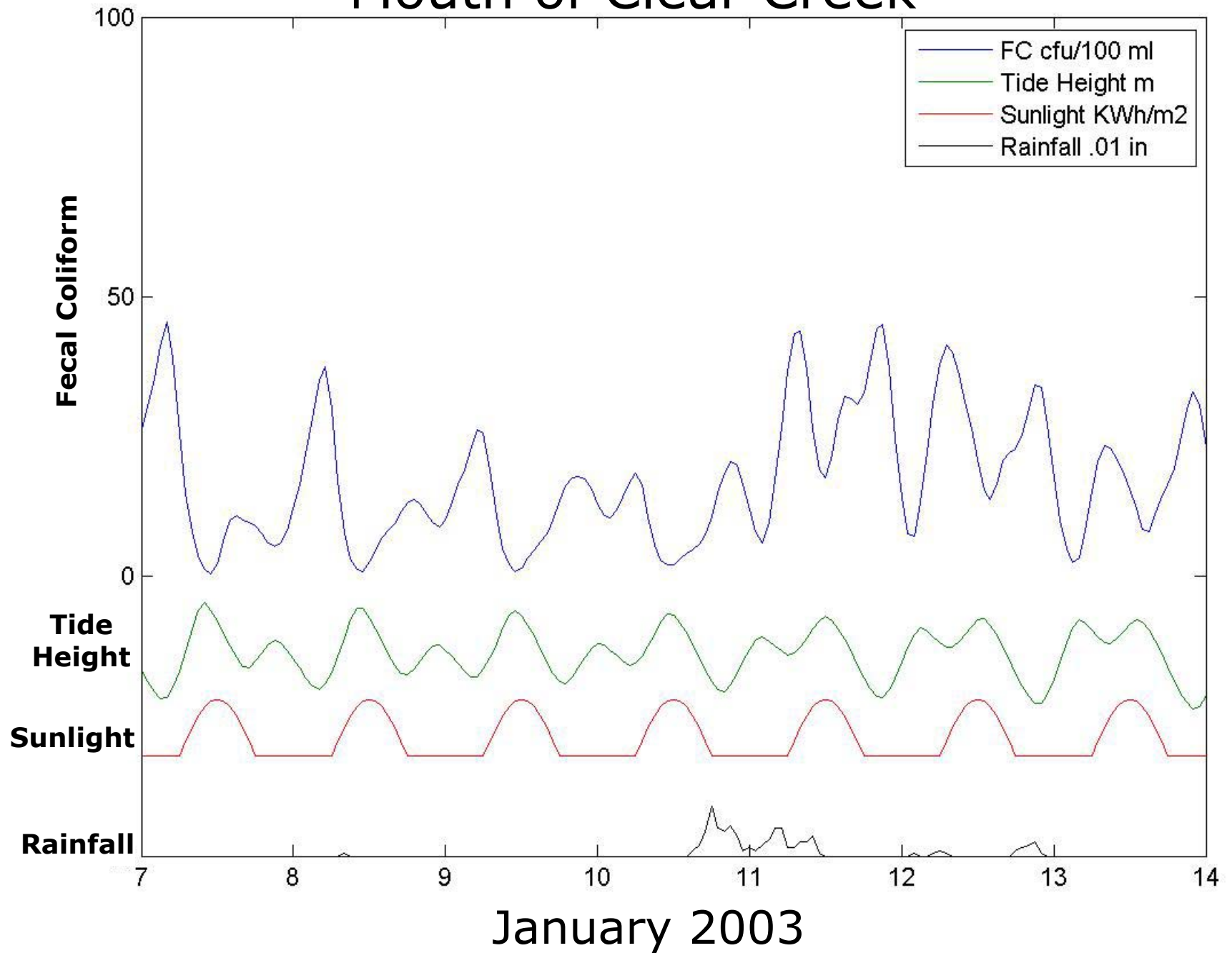
Mouth of Clear Creek



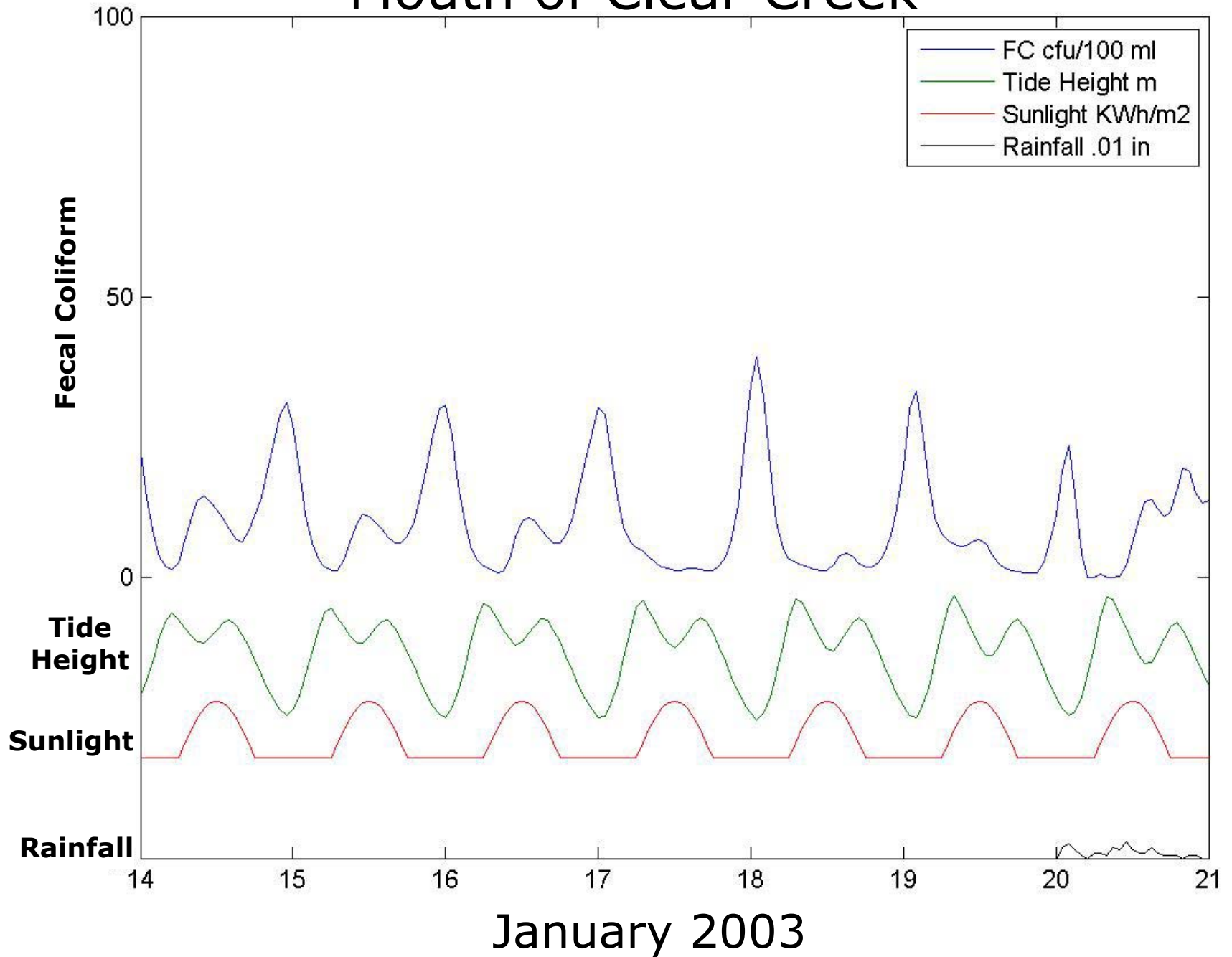
Mouth of Clear Creek



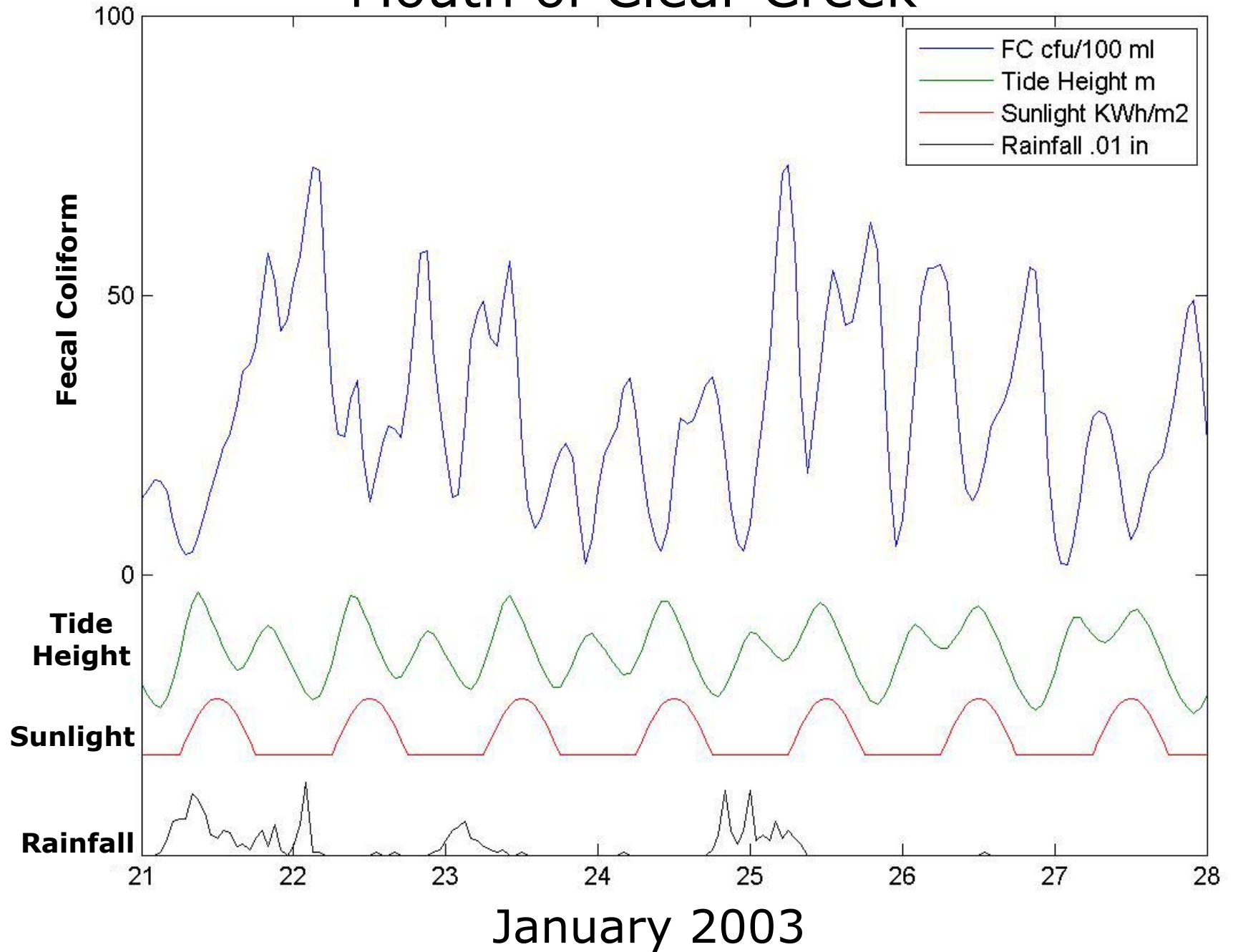
Mouth of Clear Creek



Mouth of Clear Creek



Mouth of Clear Creek



Next Steps

- **Model Results are Under Review**
 - Ecology
 - Technical Stakeholders
- **Identify Critical Conditions for TMDL**
- **Develop Scenarios for Wasteload and Load Allocations**
- **Complete Modeling Study Report**

Summary

- **Developed Integrated Model for Fecal Coliform Loading for the Inlets**
- **Based on Monitoring Data**
- **Model Results Generally Agree With Monitoring Data**
- **Model Limitations and Uncertainties Will be Factored into Water Cleanup Plan**



For More Information:

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